



Broad River Basin Plan

SUMMARY SHEET

River Basin Planning Process

The Broad River Basin Plan is the second of eight river basin plans under development for South Carolina. Once completed, the eight basin plans will converge into an updated South Carolina State Water Plan. The Broad River Basin Plan includes data, analysis, and water management strategies to guide water resource development in the basin for a planning horizon of 50 years. It was developed by the Broad River Basin Council (RBC), a group of volunteer stakeholders representing the 8 water interest categories shown below.



Composition of the Broad River Basin Council. Numbers in parentheses indicate RBC member representation at the time the plan was developed.

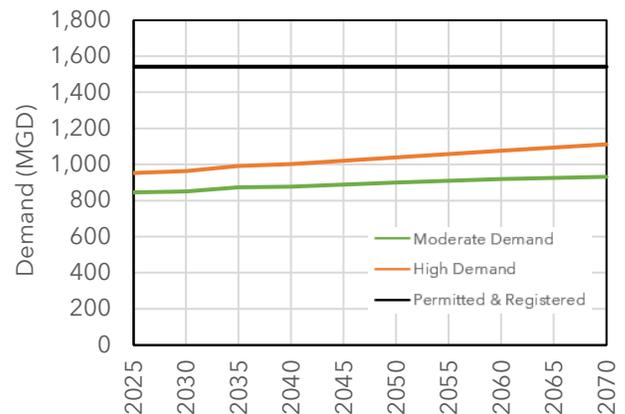
Current and Future Water Use

Current water use in the Broad River Basin is approximately 809 million gallons per day (MGD). Nearly all the water used in the basin is withdrawn from surface water and less than 0.1 percent comes from groundwater. Only about 52 percent of the currently permitted and registered amount of surface water is used. Most of the surface water used in the basin is for thermoelectric energy and public water supply purposes, as shown in the following:

- Thermoelectric*, 711 MGD (87.9%)
- Public water supply, 93.5 MGD (11.5%)
- Manufacturing, 3.3 MGD, (0.4%)
- Golf course irrigation, 1.1 MGD (0.1%)
- Agriculture, 0.3 MGD (0.04%)
- Mining, 0.1 MGD (0.01%)

*Note: Most of the water withdrawn for thermoelectric cooling is returned to the river or lake after use.

To identify whether surface water supplies are likely to meet demands up to 50 years in the future, the Broad RBC investigated two planning scenarios that covered a range of surface water demand projections: (1) a *Moderate Demand Scenario*, which assumed normal weather conditions (average irrigation) and moderate growth projections, and (2) a *High Demand Scenario* which assumed a hot a dry climate (high irrigation) and high population and economic growth. The *High Demand Scenario* is considered a conservative estimate of future demand and was used as the basis for selecting water management strategies. The *High Demand Scenario* projections for year 2070 account for 72 percent of the currently permitted and registered amount of surface water in the basin. The *Moderate Demand* and *High Demand Scenario* projections are shown below, compared to the current permitted and registered amount:



Water Demand Projections in the Broad River Basin

Key Findings

The Broad RBC used a surface water quantity model to evaluate whether existing surface water supplies were sufficient to meet projected water demands up through 2070. Some of the most significant findings include:



- Surface water resources of the Broad River basin are generally sufficient to meet current water needs.
- Some public suppliers and golf course irrigators may have insufficient supply by 2070 in the *Moderate* and *High Demand Scenarios*.
- Most of the potential public supply shortages seen in the *Moderate* and *High Demand Scenarios* can likely be avoided by optimizing the operation of existing water supply reservoirs.
- Cherokee County Board of Public Works' (BPW) existing surface water supply sources may not be sufficient to meet near-term demands in the *High Demand Scenario*.
- Current and future projected water use generally results in a relatively low risk to aquatic ecology. However, the *High Demand Scenario* projections for year 2070 could result in reductions to mean daily flow at some locations and reduce fish diversity in certain streams.

The key findings are based on modeling that used historical hydrology and does not consider the potential for droughts or low flows that may be longer or more severe than those of the past 90 years. Future phases of planning may evaluate future climate risks.

Recommendations

The RBC developed recommendations in three categories: technical, regulatory/legislative/policy, and planning process improvements. Some of the key recommendations are summarized below.

Technical Recommendations

- To eliminate future shortages, Cherokee County BPW should consider options to augment existing supplies including optimizing/increasing water from Gaston Shoals Reservoir, building a new water intake on the Broad River, and increasing storage by raising the dam at Lake Whelchel. Developing an existing quarry or building another reservoir are long-term options to increase water storage.
- Public water utilities should review and update their Drought Management Plans and coordinate responses and messaging with neighboring utilities.
- The financial impacts of reservoir sedimentation, including loss of storage and higher treatment costs should be identified.
- The levels at which low flows may lower the assimilative capacity of rivers and streams should be identified.
- Water quality throughout the basin needs to be further investigated, including the potential impact of land use changes on water quality.

Regulatory, Legislative, and Policy Recommendations

- Reasonable use criteria should be applied equally to surface water and groundwater withdrawal permits.
- Laws that allow for regulation of water use need to be enforceable. The current law, which grandfathers in most water users, can be improved to support effective water resource management.
- Water law and regulations should not distinguish between registrations and permits. All users withdrawing above the identified threshold should be required to apply for a water withdrawal permit.
- The water withdrawal permitting process should specifically assess the permit application's alignment with the current River Basin Plan, particularly regarding proposed withdrawals, returns, conservation, and drought response.

Planning Process Recommendations

- Future climate projections should be considered when evaluating surface water availability.
- SCDNR should organize statewide meetings of the RBCs with the Agriculture and Natural Resources Committee of the State Senate and Agriculture, Natural Resources, and Environmental Affairs Committee of the State House to communicate the value of water planning, highlight progress, and exchange ideas.

Call to Action

The Broad RBC developed an implementation plan, which focuses on key goals and priorities identified during the planning process. It identifies 5 short-term objectives for the next 5 years: improving water efficiency and conservation, optimizing and augmenting existing water sources, improving drought management, communicating the River Basin Plan's findings, and improving the technical understanding of water resources issues in the basin.

Implementing these near-term goals and continuing with longer-term management of the basin will require concerted efforts from the RBC, other stakeholders, and the state legislature. The following actions are ways that can help put the Plan to work:

- The South Carolina Legislature should continue to fund water planning activities, including river basin planning.
- In addition to continued water planning, near-term funding and application assistance must be available to assist water users in pursuing recommended management strategies.
- The RBC should continue to meet regularly to maintain momentum and work through implementation issues.